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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/729,710	12/05/2003	Yakov Belopolsky	FCI-2731/C3274A	4213
48580	7590	11/27/2006	EXAMINER	
WOODCOCK WASHBURN, LLP CIRA CENTRE, 12TH FLOOR 2929 ARCH STREET PHILADELPHIA, PA 19104-2891			BUI, HUNG S	
			ART UNIT	PAPER NUMBER
			2841	

DATE MAILED: 11/27/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/729,710

Applicant(s)

BELOPOLSKY, YAKOV

Examiner

Hung S. Bui

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 11 September 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12/05/2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-2, 6-12, 16-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Szu [US 6,196,871] in view of Findeis et al. [US 6,203,690] and Bhansali [US 5,893,725].

Regarding claims 1, 8-9, 12, 16-19, Szu discloses an electronic socket connector (figure 2), comprising:

- a housing (10);
- a plurality of solder masses (16) extending from a surface of the housing for electrically connecting the electrical connector to a circuit substrate (34); and
- a retention structure (18) extending from the surface of the housing and spaced apart from the plurality of solder masses (figures 3a-3b and 4a-4b).

Szu discloses the instant claimed invention except for the retention structure comprising a base material and a plating material disposed over at least a portion of the base material and the plating material being separated from the base material at a reflow temperature of the plurality of solder masses.

Findeis et al. disclose a chip carrier (10, figures 1-3) having at least one retention element (16) being mounted thereon, wherein the retention comprises a base material

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(Nickel layer 22) and a plating material (gold layer 24) covered the base material (figures 1-3).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the retention element design of Findeis et al. for the retention structure of Szu, for the purpose of providing thermal conductivity between the housing and the board.

Bhansali discloses a reflowed solder joint including material reflowed with the solder bump of component connection pads including gold and nickel-boron (column 1, lines 45-50) of the component to be connected (for instance, both nickel and gold have significantly higher melting points than lead and tin).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the reflowed solder joint composition of Bhansali for the solder composition of Szu, as modified, for the purpose of strengthening the solder joint.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the same technique to mount a socket/housing onto a printed circuit board to an opposite of the same circuit substrate of Szu, as modified, for a benefit of saving spaces.

Regarding claims 2, 10-11, Szu, as modified, disclose the instant claimed invention except for the specific reflow temperature.

Examiner takes notice that it is well known that the different composition has a different reflowed temperature based on a various kind of material, a percent of material to be mixed.

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It would have been obvious to one of ordinary skill in the art at the time the invention was made to use a specific reflow temperature of the solder masses for mounting a socket/housing to the printed circuit which is intended to be used by manufacturing.

Regarding claims 6-7, Szu, as modified, disclose the instant claimed invention except for the specific volume percentage of material associated with the solder.

The specific volume percentage of material associated with the solder would have been an obvious design consideration based on the specific fabrication technique used to mount the electrical component.

3. Claims 3-5 and 13-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Szu, as modified, as applied to claims 1, 9 and 12 above, and further in view of Melton et al. [US 5,086,966].

Regarding claims 3-5 and 13-15, Szu, as modified, disclose the instant claimed invention except for the plating material/joint being formed of gold or palladium.

Bhansali disclose an integrated chip being mounted on a circuit board by means of plurality of joints (20), wherein the joint is formed of gold (column 2, lines 34-35).

Melton et al. disclose the use of palladium in a solder composition for mounting an electrical component (column 1, line 65 – column 2, line 14).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use gold/palladium with the solder composition of Szu, as modified, as suggested by Melton et al., the purpose of improving solder wetting.

### ***Response to Arguments***

4. Applicant's arguments with respect to claims 1-19 have been considered but are moot in view of the new ground(s) of rejection.

### ***Conclusion***

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- LoVasco et al. [US 4,878,611] disclose process for controlling solder joint geometry when surface mounting a leadless integrated circuit package on a substrate;
- Wolf et al. [US 6,031,710] disclose adhesively and solder bonded capacitive filter feedthrough for implantable medical devices; and
- Miller et al. [US 4,518,112] disclose process for controlled braze joining of electronic packaging elements.

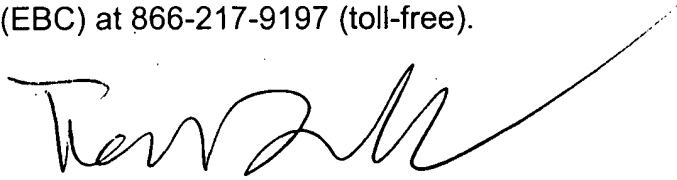
6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hung S. Bui whose telephone number is (571) 272-2102. The examiner can normally be reached on Monday-Friday 8:30AM-6:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Elvin G. Enad can be reached on (571) 272-1990. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

11/17/06  
**Hung Bui**  
**Art Unit 2841**

A handwritten signature in black ink, appearing to read 'Hung Bui', with a long, sweeping horizontal line extending to the right.